ASCENDO

SYSTEM F

USER'S MANUAL

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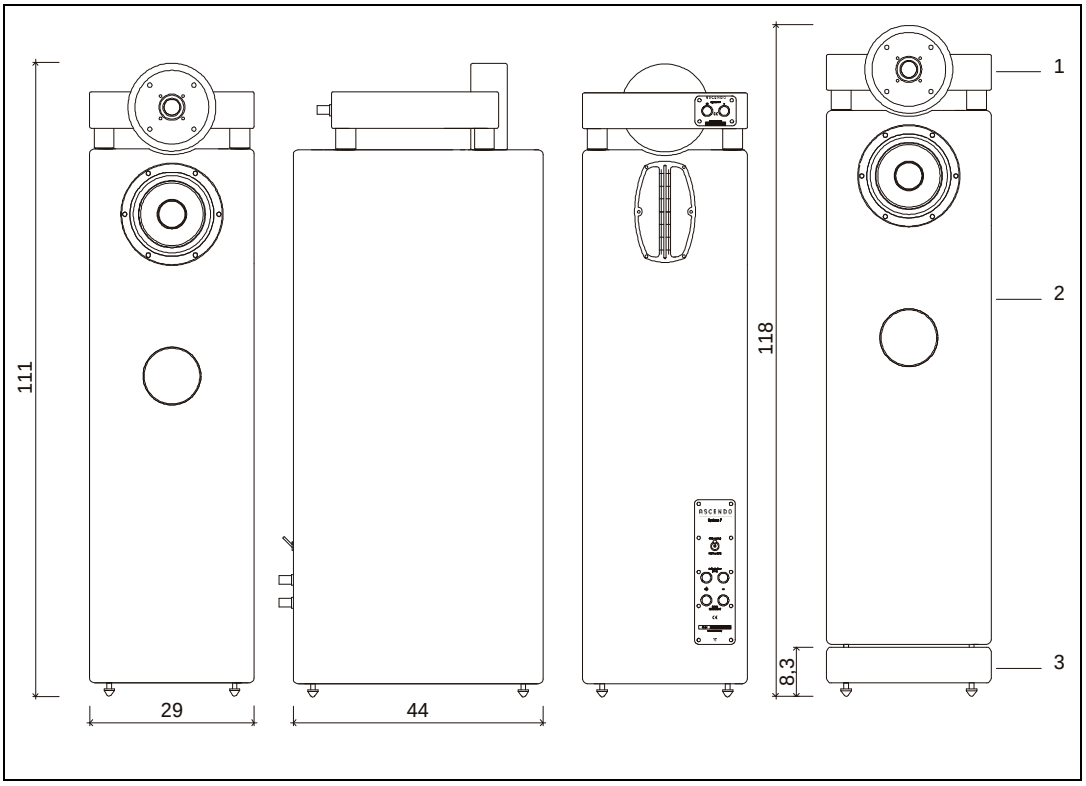
1. Overview

The ASCENDO System F is a four-way Loudspeaker constructed with ASCENDO's SASB and TOS Technologies.

The strictly modular design leads to several advantages.

- perfect phase reconstruction at the actual position of the listener by time alignment.
- consequently mechanical and electrical decoupled: more details and transparency.
- very low resonance between loudspeaker and floor.

1.1 General View



1 High Frequency Unit

2 Low Frequency Unit

3 Base (optional)

1.2 Application

The ASCENDO Loudspeaker System F is intended for use in small to mid-size rooms (< 100 m³).

You can use the System F with amplifiers in the power range of 10 W to 370 W.

1.3 Safety Warning

Warning

This Loudspeaker can produce high sound-levels. This may damage your ears permanently!

1.4 Operating modes

You can use the System F in a single-amp setup (one power amplifier for high- and low-frequency unit) or in a bi-amp setup (one power amplifier for the low-frequency-unit, one for the high-frequency unit) or in a tri-amp setup (one power amplifier for the low-frequency-chassis, one for the middle-frequency chassis, one for the high-frequency unit). You even have the possibility to use a tri-a,ping method. Then cable each of the three stereo amplifiers directly with tweeter, mid and low frequency drier

If your setup is single-amping you must bridge the high- and low-frequency unit with a high quality speaker cable. If you use bi-wiring you must bridge high- and mid driver accordingly.

The quality of the speakercables and bridges matters: please use high grade cabling for best sonic performance.

1.5 Technical Data

Principle	Four Way SASB-Technology (TOS active) Three Way SASB-Technology (TOS off)
Dimensions (W/H/D)	29 / 109 / 44 cm, with base 29 / 116 / 44 cm
Weight	48 kg
Power	370 Watt Programm (Min.)
Impedance	6 Ohm
Sensivity	88 dB/1W/m
Frequency Response	31 Hz (-3dB) – 34 kHz
High Frequency Unit	28 mm textile dome tweeter, SD-Caps
Mid Frequency Unit	18 cm woofer with NRSC membrane
Inner Driver	22,5 cm woofer with NRSC membrane
TOS Driver	magneto-static tweeter
TOS Unit	switch-able (TOS driver – dipole On/Off)
Terminals	Si / Bi / Tri-Wiring
Finish	piano lacquering black, rosewood
Manufacturer Warranty	10 years

System F Base

Dimensions (W/H/D)	29 / 6,3 / 44 cm (without spikes)
Weight	8 kg
Finish	piano lacquer black, rosewood
Manufacturer Warranty	10 years

Technical data subject to change

2. Installation

2.1 Demands on speaker location

- Use the System F in closed rooms only. Do not expose the speaker to high humidity, direct water and direct sunbeam.
- Take care of a minimum distance of 2 m of the speaker to monitors (TV, computer) and magnetic devices (audio/video-cassettes, floppy-disks, etc.).

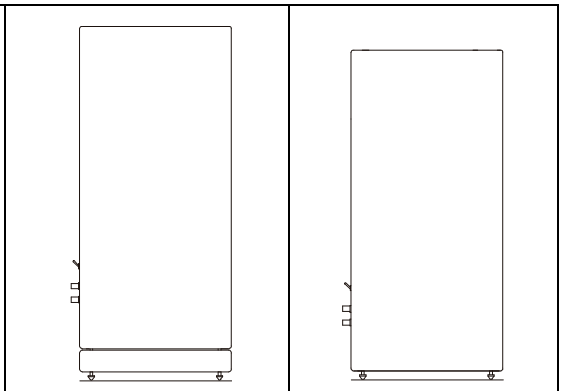
> WARNING
>
> The speaker might produce a slight permanent imprint on soft floor material!

2.2 Set-Up

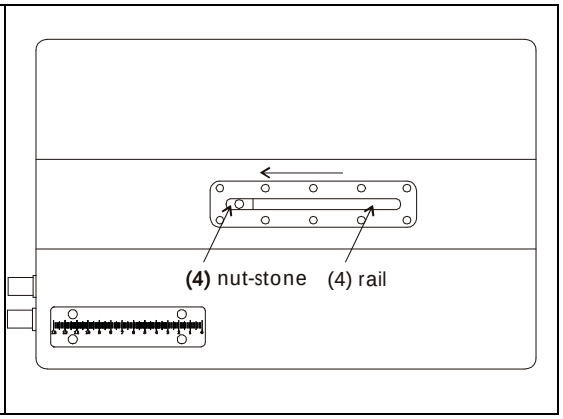
> WARNING
>
> Don't try to set-up System F with a single person. The weight of the low frequency unit is too heavy for a single person. You need at least two people for set-up!

1. Place the low-frequency unit (2) carefully at the desired place.
2. Adjust the low-frequency unit (2) for your specific position.

If you use the optional base (3), then adjust this first to your preferred listening position and set-up the low-frequency unit afterwards on top.

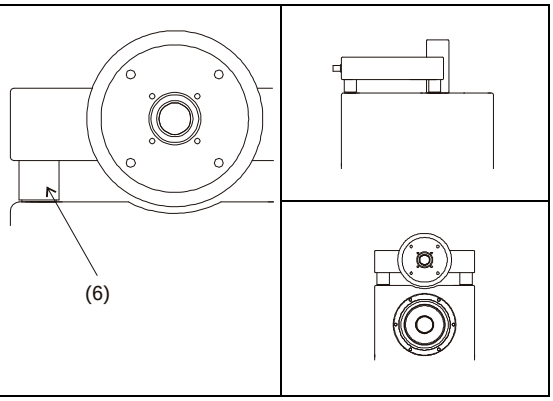


3. Move the Nut-Stone (4) inside the rail (5) until it stops to the back side.

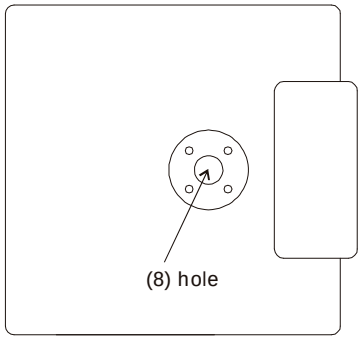


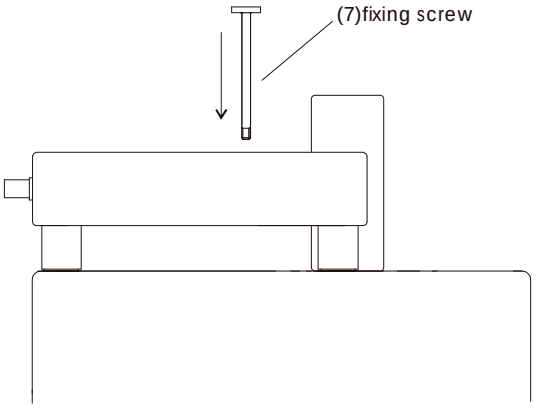
4. Place the high-frequency module (1) carefully on top of the low-frequency module(2)
5. Adjust the high-frequency module (1) in flush with the back of the low-frequency module.

   The four feet of the high-frequency module (6) should also in flush with the edges.

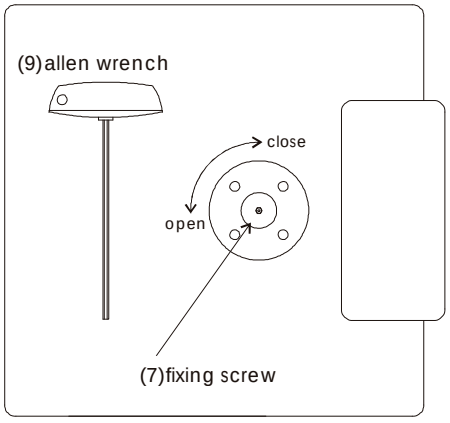


6. Insert the long fixing screw (7) into the hole of the high-frequency unit (8) and the thread of the nut-stone(4)





7. Tighten the screw (7) carefully with the allen wrench (9).
8. Adjust the time alignment (s. Chapter 6)
9. Connect the high-frequency unit, the outer-driver and the inner-driver to your power amplifier (s. Chapter 4)



WARNING

Never lift or carry the System F on the high frequency unit!

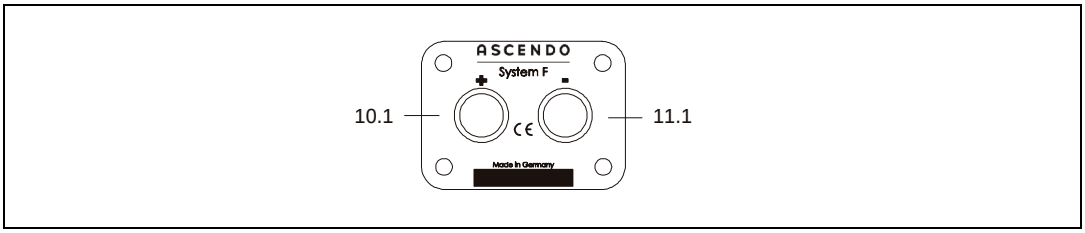
3 Transport

WARNING

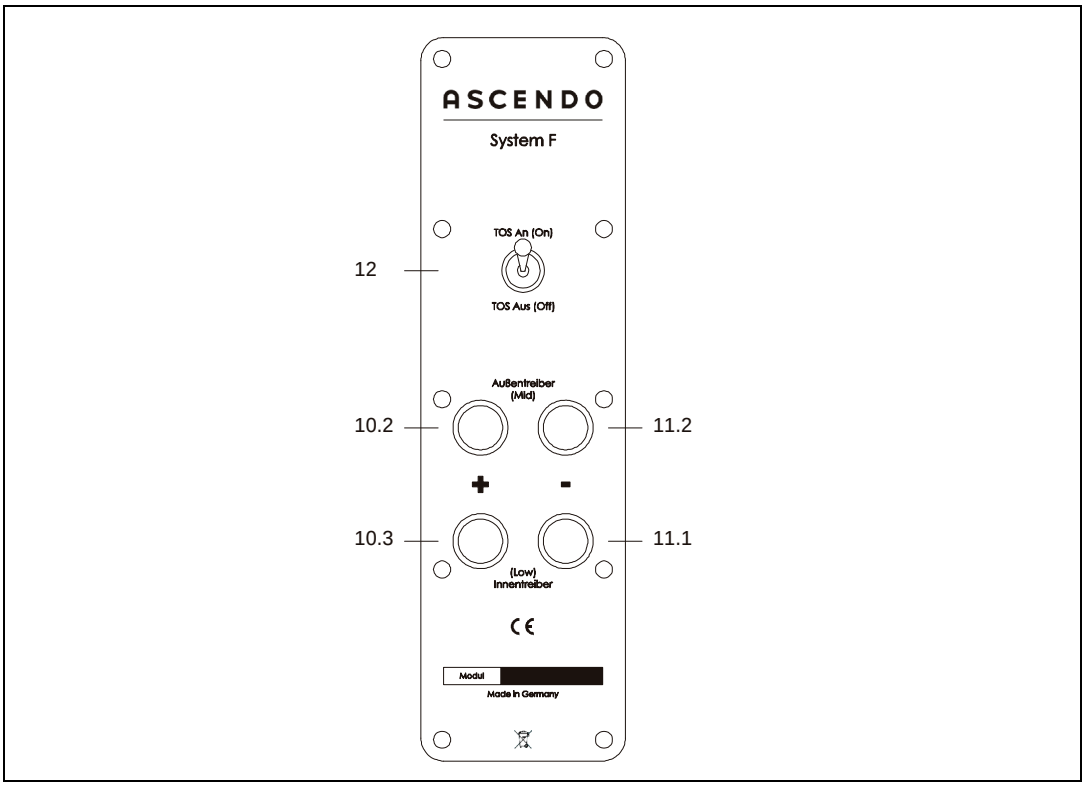
Don’t try to move or transport the System F! The weight affords at least two persons!

1. Switch off the power amplifiers and disconnect all cables of the System F.
2. Pull off the high-frequency (1) unit from the low-frequency unit (3). Lay it on a soft dry cloth. Take care not to touch the diaphragm of the tweeter.
3. Lift the low-frequency unit from the stand and the upper back-spike. Take care not to touch the diaphragm of the woofer.
4. Place the low-frequency unit (3) at its new position.

4. Connection



10.1	plus	high-frequency unit
11.1	minus	high-frequency unit



10.2	plus	low-frequency unit/ outer driver
10.3	plus	low-frequency unit/ inner driver
11.2	minus	low-frequency unit/ outer driver
11.3	minus	low-frequency unit/ inner driver
12	switch	TOS-unit / dipole On/Off

The speaker can be connected as follows:

- One cable / single-wired:
  - One cable from the power amplifier to the high-frequency unit (power amp plus to10.1, power amp minus to11.1)
  - One bridge cable from to the high-frequency unit to low-frequency unit (10.1 to 10.3 and 11.1 to11.3)
  - One bridge cable from to the inner driver to the outer driver (10.2 to 10.3 and 11.2 to11.3)

- Two cables / bi-wired:

  Version1:
  - One cable from the power amplifier to the low-frequency unit (power amp plus to10.3, power amp minus to11.3)
  - One cable from the power amplifier to the high-frequency unit (power amp plus to10.1, power amp minus to11.1)
  - One bridge cable from to the outer driver to the inner driver (10.2 to 10.3 and 11.2 to11.3)

  Version2:
  - One cable from the power amplifier to the inner driver (power amp plus to10.3, power amp minus to11.3)
  - One cable from the power amplifier to the high-frequency unit (power amp plus to10.1, power amp minus to11.1)
  - One bridge cable from to the outer driver (10.1 to 10.2 and 11.1 to11.2)

- Three cables/ tri-wired:
  - One cable from the power amplifier to the high-frequency unit (power amp plus to10.1, power amp minus to11.1)
  - One cable from the power amplifier to the outer drivver (power amp plus to10.2, power amp minus to11.2)
  - One bridge cable from the outer driver to the inner driver (10.2 to10.3, 11.2 to11.3)

- Two power amps / bi-amped:

  Version1:
  - One cable from the power amplifier A to the high-frequency unit (power amp A plus to10.1, power amp A minus to11.1)
  - One cable from the power amplifier B to the low-frequency unit (power amp B plus to10.3, power amp B minus to11.3)
  - One bridge cable from to the outer driver to the inner driver (10.2 to10.3, 11.2 to11.3)

Version2:

- One cable from the power amplifier A to the high-frequency unit (power amp A plus to10.1, power amp A minus to11.1)
- One cable from the power amplifier B to the inner driver (power amp B plus to10.3, power amp B minus to11.3)
- One bridge cable from to the outer driver to the high frequency unit (10.2 to10.1, 11.2 to11.1)

- Three amps / tri-amped:
  - One cable from the power amplifier A to the high-frequency unit (power amp A plus to10.1, power amp A minus to11.1)
  - One cable from the power amplifier B to the outer driver (power amp B plus to10.2, power amp B minus to11.2)
  - One cable from the power amplifier C to the inner driver (power amp C plus to10.3, power amp C minus to11.3)

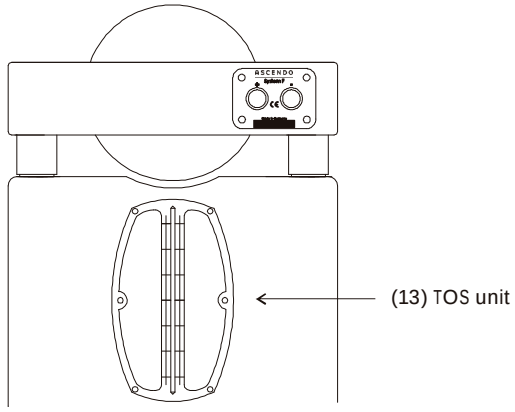
Take care to connect always the plus terminal (red) of the power amplifier with the plus terminal (red) of the speaker!

5. TOS-Unit

The design of the System F speaker utilizes a switch-able back firing TOS-Unit (13) This integrated unit optimizes and smoothens spectral inhomogeneous decay times.

The system provides two complementary modes of operation:

- Switch (12) in position AN (dipole): Dipole characteristic with TOS unit (13)
- Switch (12) in position AUS (dipole): BASYC characteristic



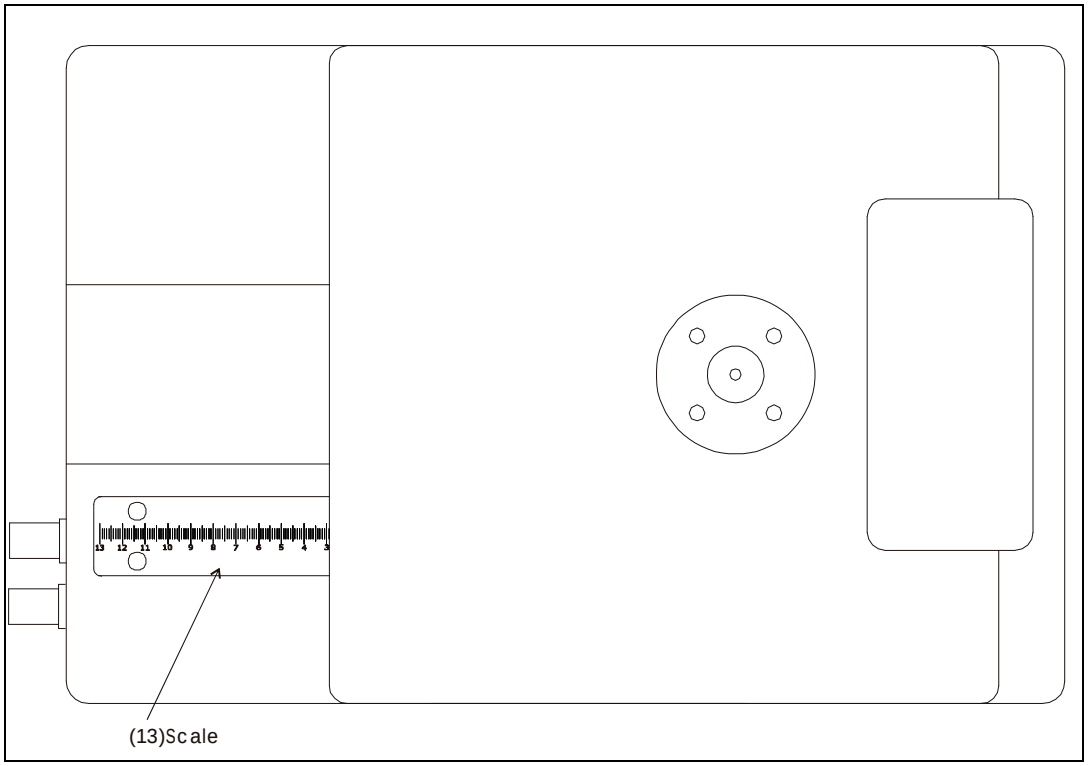
6. Time Alignment

To achieve a perfect phase reconstruction, at the actual position of the listener, the delays of the transducers must be adjusted carefully. The position of the tweeter has to be mechanically adjusted, so that a plane wave will leave the speaker system exactly in the direction to the listener's ear. This is possible owing to the specific design of the ASCENDO Systems. The displacement of the high frequency Unit ensures the correct phase in over-floor positions between 80 cm and 150 cm.

1. Switch off the power amplifiers and disconnect all cables of the System F
2. Unbolt the screw (7) for approx. ca. 1.5 rounds. Use the packed allen wrench(9).

> WARNING
>
> By applying too many rounds the screw unlocks completely from the nut-stone!

3. Measure the over-floor ear height.
4. Take the time alignment value from the chart 1/ chart 2 (Time-Alignment-Value).
5. Move the high-frequency until the back side is at the time-alignment position of the scale(13). Slightly lift up the high-frequency unit (1) while moving it.
6. Bolt the screw (1) again with approx. 1.5 rounds.



Ear height (Ohr) in cm	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
Time-Alignment-Value/Scale (13) without base	5.7	6.0	6.4	6.7	7.0	7.4	7.7	8.1	8.4	8.7	9.1	9.4	9.7	10.1	10.4

Table 1: Time-Alignment-Value without base

Ear height (Ohr) in cm	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
Time-Alignment-Value/Scale (13) with base	5.2	5.5	5.9	6.2	6.6	6.9	7.2	7.6	7.9	8.3	8.6	8.9	9.3	9.6	10.0

Table 2: Time-Alignment-Value with base

Presumptions:

1. Coplanar Set-up
2. Adjustment to the listening position
3. Zero-phase of the electronic chain

7. Cleaning

Clean the enclosure of the ASCENDO System F with a dry and soft cloth.
Don't use water or other chemicals. Don't touch the tweeter and the woofer.